Roses in India – Past, Present and Future

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At the outset I would like to thank the Rose Society of Uruguay for their very kind invitation to talk on roses in India. It is indeed a great compliment to have such an invitation from virtually what is the other end of the world from India – from the newest part of the New World to the oldest part of the Old World. There are great possibilities in this fusion of ancient tradition and modern dynamism in this association between our two countries in rose growing.

Many of you would recall the talk given by my distinguished compatriot and friend, Mrs.Meena Pimpalapure on "Roses in India as a spiritual symbol" in 1998. Without going into this aspect in greater detail, may I point out that when you deal with India, you are dealing with an unbroken thread of civilization stretching to over 5000 years. Not only is this civilization very ancient, it was surprisingly advanced even thousands of years ago. One interesting piece of history is the recent excavation of the ancient city of Dolavira on the west coast of India. This city was part of one of the earliest of Indian civilizations, perhaps 3000 years old. But the surprising feature is that the city was built after first preparing a Master Plan, where every detail was decided iln advance, including residential and commercial areas, water supply systems, sewage disposal systems etc. But yet again, India's history is full of strange gaps, largely due to the ancient tradition that the spoken word is of greater value than the written one. What the ancients meant was that the oral tradition was a direct link from the Gods, through the sages, to man, whereas the written word is secondary in character.

Throughout the centuries, the dominant religion of India- Hinduism-has worked as a strong integrating force, rather than as a divisive one. In Hinduism the Almighty is symbolized by the Trinity of Brahma, Vishnu and Shiva, representing the forces of creation, protection and destruction. But the more ancient gods – the gods of nature and its forces- fire, sea, rain and wind, still find a place in Hinduism along with countless other manifestations of the Divine.

One other interesting aspect is that India, while to a great extent a Hindu country, is also one of the most populous of Islamic countries, with an association with Islam stretching to almost 1000 years. Even more interesting perhaps, is the fact that India is one of the original Christian countries – one of the apostles, St.Thomas, arrived on the shores of India nearly 2000 years ago. Then again, India is the home of Buddhism, which is a religion which has spread to vast areas of the world, chiefly to eastern and southern Asia.

Within this time frame, it is of great interest to us rosarians to see how the rose has been repeatedly associated in different ways with the social and cultural history of India. An interesting parallel with the Trinity of the Gods mentioned earlier is the trinity of flowers used in worship – the rose, the jasmine and the lotus. Of these, the lotus has always been one of the flowers closely linked with cultural tradition, but we rose-lovers would readily

accept an ancient fable which places the rose ahead of the lotus. According to this legend, Vishnu, the Protector, came down to earth and was bathing in a pool, when a lotus bloom opened, and out of it stepped Brahma, the Creator, who, pointing to the lotus , claimed it to be the most beautiful flower on earth. Vishnu, while agreeing that it was beautiful invited Brahma to his own Paradise (called Vaikunt) where he pointed to a rosebush in a beautiful bower. There was just one flower, pale as the moon, with perfume so sweet that Brahma bowed his head and admitted "this is the fairest flower which grows".

More recent in the timescale – 1000 B.C.- is the verse in the famous Sanskrit language work of Charaka, one of the great names in Indian medical tradition, which lists seven names for the rose, including Shivapriya (beloved of Lord Shiva).

The association of roses is also interestingly reflected by the fact that there are 5 petalled roses on the pedestals of the sculpted statues of Lord Buddha, of the Gandhara school of Art which was contemporaneous with the time of Jesus Christ .

Better known perhaps is the close association of Islam in India with the rose. Babur, the 1st Emperor of the Mughal dynasty (16th century A.D.) is credited with introducing the damask rose to India from Iran. The most significant of the commercial uses of roses is the extraction of rose oil, and the Empress Nur Jehan (wife of the Emperor Jehangir of the same Mughal dynasty) who invariably bathed in rose petal heated bathwater, is credited with noticing rose oil floating on the surface of the water. From this observation has evolved the process of steam distillation of rose oil. Many of the Mughal kings were great builders of gardens.

The most beautiful garden in India in those days was the famous Shalimar Bagh (Abode of Love) in Kashmir, a garden made by Jehangir for Nur Jehan. At a much later date, this is the garden which delighted visitors with the incredible display of the rose Marechal Neil, which were planted to climb the greygreen walls of the Hall of Public Audience, and hung their soft yellow globes head downwards in clusters from the carved cornice.

Not as well known as the association of roses with the Mughal dynasty in North India is the use of roses on festive occasions by the great kings of South India. For example, the Emperor Krishnadevaraya of the Vijayanagar dynasty (A.D.1520). A contemporary account by 2 Portugese travelers, Domingo Paes and Fernao Nuniz mentions how white roses are used by the King on various ceremonial occasions, with the king , bejeweled and dressed in royal robes also in white, but adorned profusely with embroidered golden roses.

Again white roses were recorded as being used in worship in India's north east areas, over many centuries.

The coming of the British from 1600 A.D. onwards, increased the interest in roses. Roses from China, which were so popular in England and Europe, were brought in sailing ships from Chinese ports. These ships would halt at the Indian port of Calcutta on

the east coast, before continuing their long journey to England. Part of the rose plant containers would be unloaded, to be planted in the Calcutta Botanical Gardens, which was, and continues to be, the home of many rare and invaluable plants. Due to this system of unloading roses, many new introductions came into India, greatly contributing to the popularity of the rose (show slide of India map).

Geography: A brief account of India's geography and climate will be in order. If we start from the tropical south of India, just 8° North of the Equator and proceed northwards till we come to the northern boundary in the Western Himalayas, just short of 40° N we would cover not only a great distance (1600 miles) but also great diversities in climate. India's capital, New Delhi is 30° N. (You may like to contrast this with Montevideo/ Buenos Aires which is 35° S. of the Equator). But India's climates are quite different because of 2 great moderating factors.

1) the Monsoon – this is a system of alternating winds on the Arabian Sea which blows from the North East for 6 months and from the South West for another 6 months. Most of India's rainfall comes when the South West winds blow from June onwards, and the rest of the year is quite dry.
2) The Himalayas – this greatest of the world's mountain chains stretches for an incredible 1600 miles, from the ice deserts of Ladakh in the extreme west to astonishingly moist Eastern Himalayas near Assam. One place in this region has the world's highest rainfall – 500 inches.

With rainfall restricted mainly to the monsoon period, and the Himalayas well over 20,000 feet in height over most of the range, effectively preventing the India ward movement of cold air from the frozen highlands of Central Asia and Siberia, India's climates are quite different from other places in the same latitudes.

Naturally such a rich a diversity of climates supports a great variety of plant life. Talking of roses, India has 11 rose species, most of which are found in the Himalayas. I call them the Aristocrats of the Rose world. Starting from the golden rose of Iran, **R.foetida** common in certain areas of Kashmir in the North West, to **Rosa gigantea** the world's largest wild rose in plant and flower, which revels in the deluges of rain in the North-east. This rose was described romantically by an Englishman as growing through trees to a height of 50 feet with flowers like golden magnolias over the treetops. From West to East we have other interesting rose species in the Himalayas-**Rosa webbiana**, with lilac pink flowers, which is replaced by stages as we go east by **Rosa macrophylla** with dark pink, almost red flowers in the Central Himalayas. There are at least 3 kinds of musk roses – the true **Rosa moschata**, the Himalayan musk rose, **Rosa brunoni**, and the evergreen **Rosa longicuspis** in the North East. Talking of musk roses, we have a very interesting representative of the clan in Rosa leschinaultiana, endemic to the areas around Kodaikanal where I live.

But the most distinctive Indian wild rose is surely Rosa chinophylla, which is probably the only tropical rose species in the world, which is found throughout India, but mainly in delta of the River Ganges. The two rose species, R.clinophylla, and R.gigantea (which I mentioned earlier) seem destined to play a very important role in the evolution of better roses for the warmer parts of the world. I will talk of these two species and my work with them a little later.

With such a vast geographical area, and with rich diversities of climate, it is obvious that the way roses are grown ,as well as the kinds of roses that are grown, vary greatly according to the area. Even the rootstocks used are different in different places. For example, R.multiflora is favoured in the coastal and in the southern plateau areas where the soils are acid and the summers mild. In the northern plains the favoured stock is R.indica odorata (an ancient Chinese garden variety) as the summers are severe and soil is alkaline.

We should also mention in passing the poly bag method of rose propagation developed by Mr.N.A.Joshi of Poona, which has contributed greatly to the popularity of the rose in India. In this method rose stock rooted in small (4" x 3") polythene bags are budded and sold after the "eyes" have taken. These small polybags can be handled easily on the lines of a factory assembly line with the workers seated comfortably and each handling only one operation – with different workers attending to making the incision for the bud, keeping the budeye in place , tying in the budeye with polythene tape and attaching the name label.

In India most rose gardens are of the small home type, with just a very few large public gardens devoted to roses. In South India the most spectacular of public rose gardens is the recently planted Centenary Rose Garden in the hillstation of Ootacamund. In the benign climate of the hills , nearly 2000 different kinds of roses have been planted. Peak bloom is in May. A little further north are the gardens of KSG & Sons situated near Bangalore city. This nursery has perhaps one of the largest collections of modern roses in the world. Their 1999catalogue lists 1260 different varieties and many more are maintained as mother plants.

Rose growing on a large scale is practiced in the several gardens which are there in Poona-Nasik delta of Maharashtra State. This area along with areas around Bangalore cater to commercial rose growing both for plants and cutflowers. Further north the garden city of Bhopal boasts of some nicely landscaped rose gardens, effectively set off by an imposing lake. Two spectacular rose gardens in India's capital, New Delhi are those maintained by the Airports Authority of India, with over _____ varieties spread over _____acres, and that of the Rose Society of India, situated in the Diplomatic Enclave. These apart, there are good rose collections in Lucknow, (especially at the National Botanical Research Institute) at the Indian Agriculture Research Institute, in Delhi again, and in the Zakir Hussain Memorial Garden at Chandigarh, the capital of Punjab State. Index of rose gardens

Most of the public rose gardens and for that matter, most amateurs grow only modern roses. The large flowered H.T. remains undoubtedly the most popular, with First Prize, Gladiator (or Uncle Joe), Friendship, Paradise, Brandy, Vianala, Landora, Gold Medal, Just Joey and Oldtimer among the prize winners. In Delhi's rose gardens even older varieties like Garden Party, Michelle Meilland, Christian Dior and Mr.Lincoln reign supreme.

We now come to the subject of evolving better roses for warm climates including the use of the 2 rose species mentioned earlier – R.clinophylla and R.gigantea as well as the role of Heritage Roses in rose breeding. Taking up Rosa clinophylla first, this tropical species, closely related to Rosa bracteata, occurs in 3 forms.

1. the most tropical form found in Eastern India, generally by the side of rivers, especially the banks and islands of the River Ganges (called the Bengal form)
2. the hot dry climate form found in the adjoining areas of Bihar state (Bihar (Ranchi) form)
3. the cold desert form found in Mount Abu, a mountain in Western India, which rises out of the Thar Desert ("Abu form")

R.clinophylla bears single, white, scented flowers with a very characteristic fragrance like acetone (nail polish remover). The foliage is a lovely, shining light green. It is essentially a waterside plant but grows happily enough even on river and lake margins which are underwater for several months of the year. But this rose is capable of surviving extremes of heat also – the warm moist heat of Bengal or the dry heat of Bihar in summer, where temperatures are in excess of 110 F for months on end.
(Slides of R.clinophylla will be shown.)

Coming to R.gigantea described as "the Queen, the Empress of wild roses" by no less a person than Graham Stuart Thomas, we may note that the Indian form is in several ways different from counterparts in Burma and Southern China. This giant climber has flowers of a clear yellow-some of the plants are as yellow as the well known Tea Rose, Lady Hillingdon, at the bud stage. This is the giant ancestor of the Tea Roses of the world, but probably the Indian form has never been used in rosebreeding. Size apart, 2 very interesting traits are

1. R.gigantea flowers in peak winter. It is in full bloom in Dec/Jan in its native habitat.
2. It sets the largest of rose hips, the size of small apples, which ripen to yellow, rather than red.

R.gigantea is a rose of the mountains, but found only at moderate heights from 5000 to 7000 feet, that is, where frost occurs but not snow. We may not that the classic high centred form of the modern H.T. rose is the direct result of the influence of this species.
(slides of R.gigantea will be shown 2)

We now come to the subject of Heritage Roses, other than the species. Most of the Heritage Roses which do well in India belong to the Tea/Noisette or Bourbon and China groups. Among the Teas we have many which do exceptionally well including M.Falcot (cream), Devoniensis (white) Mrs B.R.Cant (pink), Lady Hillingdon (yellow) and among the favourite noisettes are the peerless Marechal Neil, Lamarque (white) Reved'Or (buff yellow) Celine Forestier (cream) ad the Reine Marie Henriette sport called Madame Drouit which has spectacular flowers of pink with darker markings. Among the Bourbons, varieties to be noted are the original Bourbon, R.Edward, the blush pink Souvenier de la Malmaison and the red **Gruss en Teplitz**. Some of the old Hybrid Perpetuals do very well. Paul Neyron with giant pink flowers, the white Frau Karl Druschki, and Hugh and George Dickson, in shades of red. Many of the Chinas are also at home in India. Cecile Brunner (pink and white). Perle d'or (pale apricot) Archduke Charles (pink changing to red) and **Old Blush** are well known examples.

An interesting feature of the Indian scene is the growing of these roses on a field scale, for use in garlands, and bouquets in temple worship, and for weddings and other traditional occasions. The most popular for this is **R.Edward**, which is grown in areas as different as the tropical delta of the River Kaveri, in the extreme south, or the foothills of the Himalayas. Because of its outstanding fragrance, R.Edward is also used in a variety of rose preparations-rose oil , rose water, and gulkand (candied rose petals).

Out of the desert sands in Rajasthan, farmers achieve the unbelievable feat of growing acres under **Gruss en Teplitz**, with the flowers being harvested and sent to Islam's holiest of places, Mecca, on an almost daily basis. In the dry tracts of Gujarat State in India's west are grown large areas under **Souvenier de la Malmaison**, for use as garlands.

When the World Federation of Rose Societies decided to select the most popular Heritage Roses, on the same lines as their existing list of favourite modern roses, the first four selected were Cecile Brunner, Glorie de Dijon, Souvenier de la Malmaison and Old Blush, all of which grow very well in India. Infact, the form of Cecile Brunner we grow is so remarkably adaptable that it thrives in the warm coastal climate of the southern city of Madras, but does equally well on the continental North Indian plains.

What David Austin has achieved by hybridizing new forms of the old roses of Europe with the attributes of new colours and continuous flowering should be an eye opener for us in India and other warmer parts of the world. The old roses which do very well in warm climates seem to have a greater following, as is evident from the WFRS polls.

The great old rose authority, Graham Thomas, who more than anyone else has contributed to the revival of in heritage roses, has made some interesting suggestions. He has pointed out that in today's smaller gardens, miniature China polyanthes of the type of Cecile Brunner, with perfect H.T.form, flowers, in different colours would be very popular. Again, he has pointed out that the climbing Noisettes of the type of Gloria de Dijon have so many virtures that further breeding should be very rewarding.

The procedure adopted by David Austin of evolving new old-roses by intercrossing Heritage Roses of Europe with modern garden varieties is not so easy to follow under warm climate conditions. Here, modern roses raised by western rose breeders with an emphasis on winterhardiness, do not generally do well. One authority has said hybrid teas last only 2 seasons in Texas. The position in tropical India, is, as can be imagined, much worse, with most parts of the country experiencing 100 degree F temperatures for several months in a year. As the process of selection for winterhardiness continues in the West, the new releases become less and less suitable for warm climates.

Clearly new genetic input is required if warm climate rose breeders are to achieve success. As the peerless Wilhelm Kordes observed – 'the soup ladle will bring out only what has been put in the tureen'.

In a similar vein India's premier rosebreeder B.S.Bhatcharji has emphasized the need to have a separate line of breeding for warm climate roses.

To this end I have been working on raising new forms of garden roses, based on R.clinophylla and R.gigantea. Work with R.clinophylla began in 1985 with a clone of the species collected in the wild near Ranchi,(Bihar) Details of the various crosses made are shown in Table 1. Last slide

As could be expected, R.clinophylla is far removed indeed from modern roses, and raising a successful cross with it has been quite difficult. 3 types of crosses were made

4) with teas, noisettes, polyanthas and other diploids as seed parents
5) with fertile garden roses (tetraploid) like Little Darling Queen Elizabeth (floribundas) Independence, Forest Meeting, Julien Potin (H.T's).
6) with the closely related R.bracteata. (Table 2)

out of the diploid crosses (200+) only one, with Mrs.B.R.Cant, has survived, with single pink flowers. All the tetraploid crosses were failures but several seedlings came from the cross with R.bracteata. The best of these intercrossed with Little Darling produced a bicolours seedlings, with, along with the pink, are the foundations. For the new strain, progress of which is shown in the chart. Table-1)

The next step will be to intercross these clinophylla hybrids wih heritage and modern roses which do well in India. But unless field trials are made it will be difficult to tell whether the genes for heat resistance and waterlogged conditions so prominent in R.clinophylla have been carried forward in these seedlings.
(slides of R.clinophylla seedlings will be shown)

I started work with R.gigantean in 1995 and already several seedlings have flowered. The cross with the orange red HT Carmousine has produced 3 vigorous growing climbing roses, both having exquisite pale apricot orange blooms with HT form and attractive foliage. (Reve d'Or x R.gigantea) is a fully double light yellow climber. Mr.Bluebird, a magenta miniature Chine rose, into R.gigantea resulted in a white edged pink single shrub rose,and the polyantha Echo into gigantean has led to a pale cream climber.

Much more interesting is the fact that the vigour and beautiful form of the F1 crosses seem to persist in the F2 generation. 2 of these have flowered – Carefree Beauty x (Carmousine x R.gigantea) has produced a very wellshaped pink HT which, hopefully will be continous flowering. Brown Velvet x (Carmousine x R.giganteam) has led to an orange red HT seedlings. It looks like a promising start, but naturally more work needs to do done.
(Slides of R.giganteam will be shown)

For the future disease resistance beautiful foliage a more acceptable plant habit, and plants of various sizes from miniatures to shrubs should be the objectives of all rosebreeders. Table -3

As far back as 150 years ago, the well known English rosarian, Thomas Rivers, talking about R.bracteata and its good qualities, said that he hoped that ultimately gardeners would not be satisfied unless all roses had evergreen foliage, brilliant and fragrant flowers and a long season of flowering. This might seen an extravagant ambition, he said, but perseverance in breeding would yet achieve wonders.

The prospect of roses with evergreen foliage would appear to be well within the realm of possibility. Among the various rose species the following are evergreen or nearly so: **R.clinophylla, R.bracteata, R.sempervirens, R.banksia, R.gigante, R.laevigata, R.wichuriana.** Apart from beautiful efvergreen foliage, all those share the very important characteristic – they are all native to the warmer parts of the world. The link between evergreen foliage and warm climate is hopefully very close indeed. To my mind creating an evergreen rose should be the ultimate objective of rosebreeders in warm climates.
Table 2 shows some of the results already achieved using evergreen roses.

Slides of evergreen rose foliage/flowers will be shown.